

Remarks

The Examiner rejected claims 20, 21, and 24-26 under 35 USC §103 as being obvious over EP 1 037 041 A2 ("041 patent") in view of U.S. Patent No. 4,272,353 to Lawrence or U.S. Patent No. 6,319,293 to Debe et al. Based on the foregoing amendments and following remarks, Applicants submit all claims should be allowed.

As amended, all claims relate to an ionomer membrane that is dry during the steps of providing the at least one opening in the substrate, placing the electrode proximate to the at least one opening, contacting the dry ionomer membrane to the substrate and electrode, providing at least one hole in the ionomer membrane, and aligning the at least one hole with the at least one opening for defining a gas passage.

The Examiner seems to rely upon the '041 patent for showing Applicants' claimed sensor while Debe and Lawrence are each relied upon to show the ionomer membrane is dry during Applicants' claimed steps. For the following reasons, Applicants submit it would be improper to combine the '041 patent with either Debe or Lawrence to arrive at an ionomer membrane that is dry during the steps of providing the at least one opening in the substrate, placing the electrode proximate to the at least one opening, contacting the dry ionomer membrane to the substrate and electrode, providing at least one hole in the ionomer membrane, and aligning the at least one hole with the at least one opening for defining a gas passage. Moreover, even if the combination is made somehow, the resulting combination would not arrive at Applicants' claimed invention without modification.

Referring to paragraph 33 of the '041 patent, it specifically teaches away from Applicants' claimed invention and states a body includes a layer of alumina paste and layers of platinum past and that a solution of Nafion 5 is applied to the body and dried.

A solution is by definition the opposite of something that is dry because if the ionomer membrane was dry, there would not be any solution. Moreover, the reference specifies the Nafion is to be dried. This means the membrane must be wet as it is applied to the body or there would not be anything to dry. Therefore, this wet membrane is opposite to Applicants' claimed dry ionomer that is dry during the step of contacting the ionomer membrane to the substrate and electrode.

In a preferred embodiment of the '041 patent, there is no mention whatsoever that the nafion is dry at any point and therefore Applicants do not see any motivation in the '041 patent to be combined with any reference that relates to a dry membrane, such as Debe or Lawrance.

A prima facie case of obviousness requires that the Examiner show that the proposed combination teaches all of the claimed elements, that there is motivation for the combination, and that there is a reasonable expectation of success for the combination.

Debe teaches a three layered assembly of a membrane with an electrode on both sides of the membrane (This is a membrane electrode assembly (MEA), or an electrode-conductive membrane-electrode (see Abstract, Summary, Detailed Description)). Even assuming Debe teaches a dry membrane during assembly, the membrane is dry when the membrane is placed between two electrodes. There is no other assembly taught or suggested and Debe cannot show that the membrane was dry during the steps of providing the at least one opening in the substrate, placing the electrode proximate to the at least one opening, contacting the dry ionomer membrane to the substrate and electrode, providing at least one hole in the ionomer membrane, and aligning the at least one hole with the at least one opening for defining a gas passage.

As stated in the August 25, 2006 Advisory Action, Lawrance is relied upon to show that the ionomer membrane is dry during MEA construction. Similar to Debe, Lawrance lacks any teaching or suggestion for the membrane to be dry during the steps of providing the at least one opening in the substrate, placing the electrode proximate to the at least one opening, contacting the dry ionomer membrane to the substrate and electrode, providing at least one hole in the ionomer membrane, and aligning the at least one hole with the at least one opening for defining a gas passage.

In view of the above arguments, none of the references teaches or suggests a membrane that is dry during the steps of providing the at least one opening in the substrate, placing the electrode proximate to the at least one opening, contacting the dry ionomer membrane to the substrate and electrode, providing at least one hole in the ionomer membrane, and aligning the at least one hole with the at least one opening for defining a gas passage. When no reference refers to such claimed features, the motivation to combine the stated references in a manner to include Applicant's claimed feature is also absent. The reasonable expectation of success prong is moot given the failure of the "all-elements" and motivation prongs.

Even assuming that the references may be combined somehow, the combination of these references still do not arrive at a membrane that is dry during the steps of providing the at least one opening in the substrate, placing the electrode proximate to the at least one opening, contacting the dry ionomer membrane to the substrate and electrode, providing at least one hole in the ionomer membrane, and aligning the at least one hole with the at least one opening for defining a gas passage.

Both Debe and Lawrance relate to MEAs and do not have the above steps and therefore cannot show the membrane is dry during these steps. The EP reference does

not have any opening in the substrate, opening in the membrane, and therefore does not teach or suggest aligning these openings for defining a gas passage.

In order to arrive at Applicants' claimed invention, the combination of cited art needs to be modified. However, for a modification to be proper, there must be teaching or suggestion in the cited art in order to provide motivation for one skilled in the art to make the modification. Absent such teaching or suggestion, one skilled in the art would not have the motivation to make the suggested modification and, therefore, such modification in the absence of these requisite teachings or suggestions is improper. As discussed above, the none of the references teach or suggest, and therefore neither does the combination of references, a membrane that is dry during the steps of providing the at least one opening in the substrate, placing the electrode proximate to the at least one opening, contacting the dry ionomer membrane to the substrate and electrode, providing at least one hole in the ionomer membrane, and aligning the at least one hole with the at least one opening for defining a gas passage.

Without these requisite teachings or suggestions, there is no motivation to properly modify the cited art under 35 USC 103 and the rejections should be withdrawn. Based on the foregoing, Applicants' submit that all claims are in condition for allowance.

Respectfully submitted,



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Wesley W. Whitmyer, Jr., Registration No. 33,558
David Chen, Registration No. 46,613
Attorneys for Applicants
ST.ONGE STEWARD JOHNSTON & REENS LLC
986 Bedford Street
Stamford, CT 06905-5619
203 324-6155